

Department of Electrical Engineering**Engineering Management and Economics
Assignment**

Spring-2019-20, Dated 13-4-2020

Instr: Dr. Jehanzeb Khan**Time= 5 Days****Marks 30**

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Q.1:

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1. Engineering Management is:

- A. An art
- B. Both science and art
- C. A science
- D. Neither art nor science

2. Engineers can become good managers only through _____.

- A. Experience
- B. Taking master degree in management
- C. Effective career planning
- D. Trainings

3. When engineer enters management, what is the most likely problem he finds difficult to acquire?

- A. Learning to trust others
- B. Learning how to work through others
- C. Learning how to take satisfaction in the work of others
- D. All of the above

4. Strategic planning is undertaken in which management level?

- A. Lower management level
- B. Middle management level
- C. Top management level

D. Lowest management level

5. What management functions refers to the process of anticipating problems, analyzing them, estimating their likely impact and determining actions that will lead to the desired outcomes and goals?

A. Planning

B. Leading

C. Controlling

D. Organizing

6. What refers to the establishing interrelationships between people and things in such a way that human and materials resources are effectively focused toward achieving the goal of the company?

A. Planning

B. Leading

C. Controlling

D. Organizing

7. Actual performance normally is the same as the original plan and therefore it is necessary to check for deviation and to take corrective action. This action refers to what management function?

A. Organizing

B. Planning

C. Controlling

D. Staffing

8. Strategic planning is undertaken in which management level?

A. Lower management level

B. Middle management level

C. Top management level

D. Lowest management level

9. For a project manager to achieve his given set of goals through other people, he must have a good _____.

A. Interpersonal skills

B. Communication skills

C. Leadership

D. Decision- making skills

10. An engineer is required to finish a certain engineering job in specific time. He is said to be _____ if he finished the job within the required specific time.

A. Efficient

B. Effective

C. Reliable

D. Qualified

11. If an engineer provides less input (labor and materials) to his project and still come out with the same output, he is said to be more _____.

A. Managerial skill

B. Economical

C. Effective

D. Efficient

Q.2 a) A Manager's job is complex and multidimensional and requires a range of skills. What are those skills, discuss in detail.

5 Marks

b) Briefly explain characteristics of authority.

5 Marks

Q.3: a) How does a project emerge? Describe its characteristics.

5 Marks

b) An international Conference is planned in Iqra national University. The activities listed down with their predecessors and time taken. Prepare a network diagram and determine the critical path.

5 Marks

Activity	Precedence	Time
A Date, topics & Speaker	-	5 days
B Prepare logo & brochures	-	1 day
C Send letters to speakers	B	2 days
D Get confirmation from Speakers	C	5 days
E Send letters to participants	C,D	2 days
F Obtain travel plan from speakers	D	2 days
G Arrange Accommodation	F	1 day
H Get handouts from speakers	F	4 days
I Finalize Registration	G,H	10 days
J Setting of Hall	I	1 day
K Conduct of Program	J	1 day

①

Q1# Choose the correct answers

1) Engineering management is _____
Ans) Both Science and Art.

2) Engineer can become good managers only through _____
Ans# ~~experience~~ effective career planning

3) When engineer enters management. What is the most likely problem he finds difficult to acquire?
Ans# All of the above

4) Strategic planning is undertaken in which management level?
Ans# Top management level

5) What management function refers to the process of anticipating problems analyzing them, estimating their likely impact and determining actions that will lead to the desired outcomes and goals?
Ans# Planning

(2)

⑥ What refers to the establishing interrelations between people and things in such a way that human and material resources are effectively focused toward achieving the goal of the company?
 Ans # ~~leading~~ organizing.

⑦ Actual performance normally is the same as the original plan and therefore it is necessary to check for deviation and to take corrective action. This action refers to what management function?
 Ans # Controlling

⑧ Strategic planning is undertaken in which management level?
 Ans # Top management level

⑨ For a project manager to achieve his given set of goals through other people he must have a good _____?
 Ans # ~~leadership~~ interpersonal skills

10) An engineer is required to finish a certain engineer job in specific time. He is said to be _____ if he finished the job within the required specific time.

(3)

Ans# Effective

(ii) If an engineer provides less input (labor and materials) to his project and still come out with same output, he is said to be more _____?

Ans# Efficient.

Q2 + (a) A manager's job is complex and multidimensional and requires a range of skills. What are those skills discuss in detail?

Ans# The skills are following.

- ① Conceptual skills.
- ② Human skill
- ③ Technical skill
- ④ Diagnostic skill.

① Conceptual skills:- is the ability to see the organization as a whole and the relationships among its parts. Conceptual skill involves the manager thinking, information processing and planning abilities. Knowing where one's department fit into the total organization.

(4)

and how the organization fit into the industry, the community and the broader business and social environment.

The ability to think strategically (broad long term view)

Conceptual skill is very important for manager at the top. For example Microsoft, reflects the conceptual skill of its chairman,

Bill Gates, general business goals are clearly stated and communicated throughout the company, contributing to Microsoft leadership reputation and billion dollar revenues. Gates spread his concept for Microsoft by delegating to a cadre of strong managers. Scott Oki, senior ~~senior~~ vice-president for sales and marketing pointed out, each part of the company has a life of its own now, but Bill is the glue that holds it together.

② Human Skill # is the ability to work with and through other and to work effectively as a group member.

The ability to motivate, coordinate, lead, communicate, and resolve conflicts. allow subordinate to express themselves without fear of ridicule and encourage participation.

(5)

Relies on the quality of its people for its success. Like other people and is liked by other. Have good judgment for decisions such as hiring and setting company policy. He makes employees feel and valued and inspired and promote class working relationship that are fun. effective managers are cheer-leaders, facilitators, coaches, and nurturers. Excellent managers don't take people for granted. measure employees satisfaction using formal questionnaire. Getting things done through people.

#(3) technical Skill is the understanding and proficiency (skill, ability, talent) in the performance of specific tasks.

Includes mastery of methods, techniques and equipment involved in specific function such as engineering, manufacturing, finance forecasting and marketing skills. Specialized knowledge, analytical ability, competent use of tools and techniques to solve problems in specific discipline.

(6)

(4) Diagnostic Skill # Managers ability to visualize the most appropriate response. Diagnose and analyze a problem and then developing a solution. For example high turnover - possible reason - dissatisfaction with pay or not favorable environment or poor interpersonal skill. find solution by interviewing of employees.

Q2(b) # Briefly explain characteristic of authority?

Ans # characteristic of authority are following.

- (1) Authority is vested in organizational position not people. Because of the position that manager hold.
- (2) Authority flow down the vertical hierarchy. position at the top of the hierarchy are vested with formal more formal authority than are position at the bottom.
- (3) Authority is accepted by employees. Authority flow top down through the organization hierarchy. employees comply because they believe that manager have legitimate right issue orders.

⑦

- ④ Responsibility is the flip side of the authority coin. It is the duty to perform the task or activity an employee has been assigned. When managers have responsibility for task outcomes but little authority, the job is possible but difficult. But when managers have authority exceeding responsibility, they may become tyrants.
- ⑤ Differentiating between positions: The last building block of organization structure is differentiating line and staff position. Line managers work directly toward organizational goals, whereas staff managers advise and assist.
- ⑥ Centralization: The process of systematically retaining power and authority in the hands of higher-level managers. Decision-making power and authority are with top managers. In times of crisis or risk of organization failure, authority may be centralized at the top.
- ⑦ Decentralization: The process of systematically delegating power and authority throughout the organization to middle and lower level managers. Decision-making power and authority are delegated as far down the chain of command as possible. The greater the complexity and uncertainty of the environment, the

(8)

Greater is the tendency to decentralize
Successful organization are usually
decentralized

Q3(a) How does project emerge? Describe its characteristics?

Ans# Project emerge by driven by a need.
A desire for innovation and Creativity.
An addition to a School of thought or
a body of knowledge.

Characteristics of a project

All projects have characteristics in common that set them apart from other operations

1. Defined start and finish
 2. Time frame for completion
- A point where it starts... a 'time zero'
 - A point where it finishes... 'delivery'
 - The implication is a time scale

3) Uniqueness:-

- A Unique need distinguished from day to day operations
- But potential repetition not barred
Subject to consideration of Special circumstances.

(9)

→ can include contingency planning where start date is unknown/unknown.

4) involvement of several people.

→ The project team

→ Those affected by the project (eg new plant operators)

→ provision for specific skills and approaches.

5) limited resources.

→ people, materials, money and time all constrained

→ potential trade off between these possible

→ potential of technology almost limitless.

6) Sequencing of activities

→ interdependence of some activities

→ Step by step progress

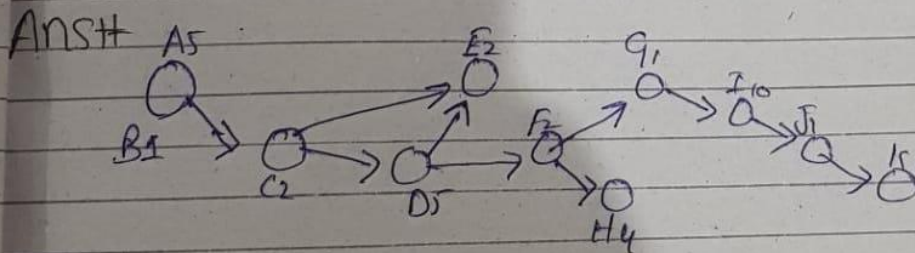
→ opportunity for overlapping

→ need for careful planning of step order.

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Q3(b) An international conference is planned in your national university. The activity listed down with their predecessors and time taken. prepare a network diagram and determine the critical path.

Activity	Precedence	Time
A Desk, topic & speaker	-	5 days
B prepare logo & brochures	-	1 day
C Send letters to speakers	B	2 day
D Get any confirmation from speaker	C	5 day
E send letter to participants	C, D	2 day
F Obtain travel plan from speaker	D	2 day
G Arrange Accommodations	F	1 day
H Get handouts from speaker	F	4 day
I Finalize Registration	G, H	10 day
J setting of Hall	I	1 day
K conduct of program	J	1 day



Paths #

1) $B \rightarrow C \rightarrow D \rightarrow F \rightarrow G \rightarrow I \rightarrow J \rightarrow K$
 $1 + 2 + 5 + 2 + 1 + 10 + 1 + 1 = 23$

~~2) $B \rightarrow C \rightarrow D \rightarrow E \rightarrow F \rightarrow G \rightarrow I \rightarrow J \rightarrow K$~~

(11)

$$\textcircled{2} \quad B \rightarrow C \rightarrow D \rightarrow F \rightarrow H \rightarrow I \rightarrow J \rightarrow K$$

$$1 + 2 + 5 + 2 + 4 + 10 + 1 + 1 = 26$$

Hence critical paths-

$$B \rightarrow C \rightarrow D \rightarrow F \rightarrow H \rightarrow I \rightarrow J \rightarrow K$$